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CLAIM AMENDMENTS

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Claim Amendment Summary

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Claims pending

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- At time of the Action: Claims 1-52.
- After this Response: Claims 1-35, 37-40, and 42-52.

7

Canceled or Withdrawn claims: 36 and 41.

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9

Amended claims: 14.

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New claims: none.

12

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Claims:

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1. **(ORIGINAL)** A method for measuring bandwidth between two
16 entities on a network, the method comprising:

17 receiving at least one first non-compressible packet having measurable
18 characteristics;

19 calculating bandwidth based upon, at least partially, characteristics of the
20 first non-compressible packet.

21 2. **(ORIGINAL)** A method as recited in claim 1, wherein the first non-
22 compressible packet is approximately fragmentation-avoidance size.

1 3. **(ORIGINAL)** A method as recited in claim 1, wherein the first non-
2 compressible packet is highly entropic.

3
4 A/
5 4. **(ORIGINAL)** A method as recited in claim 1, wherein the first non-
6 compressible packet is formatted for TCP.

7
8 5. **(ORIGINAL)** A method as recited in claim 1, wherein the first non-
9 compressible packet is formatted for UDP.

10
11
12 6. **(ORIGINAL)** A method as recited in claim 1 further comprising:
13 after receiving the first packet, receiving a second non-compressible packet
14 having measurable characteristics including a packet size (PS) and a time of
15 receipt (t_3);

16 wherein the measurable characteristics of the first packet include a packet
17 size, which is equivalent to the packet size of the second packet, and a time of
18 receipt (t_1);

19
20 wherein bandwidth (bw) is calculated, during the calculating, by this
21 formula:

$$bw = \frac{PS}{t_3 - t_1}$$

1 7. (**ORIGINAL**) A method as recited in claim 1 further comprising
2 querying a modem of an entity about a bandwidth setting of the modem when
3 result of calculating bandwidth is outside a given range of believability.
4 A1

5 8. (**ORIGINAL**) A method as recited in claim 1 further comprising
6 storing result of calculating bandwidth within a list of recent bandwidth
7 measurements.

8
9 9. (**ORIGINAL**) A method as recited in claim 1 further comprising:
10 storing result of calculating bandwidth within a list of recent bandwidth
11 measurements;

12 finding a statistical derivation from such list, such derivation representing a
13 most likely actual bandwidth between the two entities.

14
15 10. (**ORIGINAL**) A method as recited in claim 1 further comprising:
16 storing result of calculating bandwidth within a list of recent bandwidth
17 measurements;

18 finding a median of such list, such median representing a most likely actual
19 bandwidth between the two entities.

20
21 11. (**ORIGINAL**) A program module having computer-executable
22 instructions that, when executed within a computing operating environment at an
23 application layer, performs the method as recited in claim 1.

1 12. (ORIGINAL) A computer-readable medium having computer-
2 executable instructions that, when executed by a computer, performs the method
3 as recited in claim 1.

4 A/

5 13. (ORIGINAL) A method for measuring bandwidth between two
6 entities on a network, the method comprising:

7 receiving a first non-compressible packet;
8 receiving a second non-compressible packet;
9 calculating bandwidth based upon the first and second non-compressible
10 packets.

11

12 14. (PRESENTLY AMENDED) A method as recited in claim 13, wherein
13 bandwidth (bw) is calculated, during the calculating, by this formula:

14

$$15 \quad bw = \frac{PS}{t_3 - t_1}$$

16

17 where

- 18
- 19 • PS is packet size of the first and second non-compressible packet;
 - 20 • t3 is a time of receipt of the second packet;
 - 21 • t1 is a time of receipt of the first packet.

22

23 15. (ORIGINAL) A method as recited in claim 13, wherein the first and
24 second non-compressible packets are approximately fragmentation-avoidance size.

25

1 16. (ORIGINAL) A method as recited in claim 13, wherein the first and
2 second non-compressible packets are highly entropic.

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4 17. (ORIGINAL) A method as recited in claim 13, wherein the first and
5 second non-compressible packets are formatted for TCP.

6

7 18. (ORIGINAL) A method as recited in claim 13, wherein the first and
8 second non-compressible packets are formatted for UDP.

9

10 19. (ORIGINAL) A method for measuring bandwidth between two
11 entities on a network, the method comprising:

12 sending at least one first non-compressible packet;
13 receiving a bandwidth calculation based upon, at least partially,
14 measurements related to the first non-compressible packet.

15

16 20. (ORIGINAL) A method as recited in claim 19, wherein the first non-
17 compressible packet is approximately fragmentation-avoidance size.

18

19 21. (ORIGINAL) A method as recited in claim 19, wherein the first non-
20 compressible packet is highly entropic.

21

22 22. (ORIGINAL) A method as recited in claim 19, wherein the first non-
23 compressible packet is formatted for TCP.

1 **23. (ORIGINAL)** A method as recited in claim 19, wherein the first non-
2 compressible packet is formatted for UDP.

3 A1

4 **24. (ORIGINAL)** A method as recited in claim 19 further comprising
5 sending a second non-compressible packet immediately after sending the first
6 packet and before receiving a bandwidth calculation, wherein the first and second
7 packets are equivalent in size.

8

9 **25. (ORIGINAL)** A method as recited in claim 19, after the receiving,
10 further comprising:

11 selecting a file formatted for a given bandwidth that is equal to or less than
12 the bandwidth calculation;

13 sending such file.

14

15 **26. (ORIGINAL)** A method as recited in claim 19, after the receiving,
16 further comprising:

17 selecting a subfile formatted for a given bandwidth that is equal to or less
18 than the bandwidth calculation;

19 sending such subfile.

20

21 **27. (ORIGINAL)** A method as recited in claim 19, before the sending,
22 further comprising selecting the first non-compressible packet from a set of
23 differing non-compressible packets.

1 **28. (ORIGINAL)** A method as recited in claim 19, before the sending,
2 further comprising generating the first non-compressible packet.

3
4 **29. (ORIGINAL)** A computer-readable medium having computer-
5 executable instructions that, when executed by a computer, performs the method
6 as recited in claim 19.

7
8 **30. (ORIGINAL)** A method for measuring bandwidth between two
9 entities on a network, the method comprising:

10 sending a first non-compressible packet;
11 sending a second non-compressible packet immediately after the sending of
12 the first packet.

13
14 **31. (ORIGINAL)** A method as recited in claim 30 further comprising
15 receiving a bandwidth calculation based upon measurements related to the first
16 and second non-compressible packets.

17
18 **32. (ORIGINAL)** A method as recited in claim 30, wherein the first and
19 second non-compressible packets are approximately fragmentation-avoidance size.

1 **33. (ORIGINAL)** A method as recited in claim 30, wherein the first and
2 second non-compressible packets are highly entropic.

3 **A**
4 **34. (ORIGINAL)** A method as recited in claim 30, wherein the first and
5 second non-compressible packets are formatted for TCP.

6

7 **35. (ORIGINAL)** A method as recited in claim 30, wherein the first and
8 second non-compressible packets are formatted for UDP.

9

10 **36. (CANCELED)**

11

12 **37. (ORIGINAL)** A method of approximating a bandwidth between two
13 entities on a network, the method comprising:

14 generating a list of entries, each entry containing a recent bandwidth
15 measurement;

16 each measurement being based upon a Packet-Pair bandwidth calculation of
17 different pairs of packets.

18

19 **38. (ORIGINAL)** A method as recited in claim 37 further comprising
20 replacing a measurement in an entry with a most recently calculated measurement.

21

22 **39. (ORIGINAL)** A method as recited in claim 37, wherein the packets,
23 which are the basis for the Packet-Pair bandwidth calculation, are non-
24 compressible.

1 **40. (ORIGINAL)** A method as recited in claim 37, wherein the packets,
2 which are the basis for the Packet-Pair bandwidth calculation, are highly entropic.

3 **41. (CANCELED)**

4 **A1**
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6 **42. (ORIGINAL)** A computer-readable medium having stored thereon a
7 data structure, comprising:

8 a list of entries, each entry being a recent bandwidth measurements;
9 each entry being based upon a Packet-Pair bandwidth calculation of
10 different pairs of packets.

11
12 **43. (ORIGINAL)** A computer-readable medium having computer-
13 executable instructions that, when executed by a computer, perform a method to
14 measure bandwidth between two entities on a network, the method comprising:

15 receiving a first non-compressible packet;
16 receiving a second non-compressible packet;
17 calculating bandwidth based upon the first and second non-compressible
18 packets.

19
20 **44. (ORIGINAL)** A computer-readable medium having computer-
21 executable instructions that, when executed by a computer, perform a method to
22 measure bandwidth between two entities on a network, the method comprising:

23 sending a first non-compressible packet;
24 sending a second non-compressible packet immediately following the
25 sending of the first packet.

1
2 **45. (ORIGINAL)** A computer-readable medium having computer-
3 executable instructions that, when executed by a computer, perform a method to
4 approximate a bandwidth between two entities on a network, the method
5 comprising:

6 generating a list of entries, each entry containing a recent bandwidth
7 measurement;

8 each measurement being based upon a Packet-Pair bandwidth calculation of
9 different pairs of packets.

10 A1
11 **46. (ORIGINAL)** A modulated data signal having data fields encoded
12 thereon transmitted over a communications channel, comprising:

13 a first packet containing non-compressible data;

14 a second packet following the first packet, the second packet containing
15 non-compressible data.

16
17 **47. (ORIGINAL)** The modulated data signals as recited in claim 46,
18 wherein the first and second packets are approximately fragmentation-avoidance
19 size.

1 **48. (ORIGINAL)** The modulated data signals as recited in claim 46,
2 wherein the first and second packets are highly entropic.

3

4 **49. (ORIGINAL)** The modulated data signals as recited in claim 46,
5 wherein the first and second packets are formatted for TCP.

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7 **50. (ORIGINAL)** The modulated data signals as recited in claim 46,
8 wherein the first and second packets are formatted for UDP.

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10 **51. (ORIGINAL)** An apparatus comprising:
11 a processor;
12 a bandwidth measurer executable on the processor to:
13 receive a first non-compressible packet having measurable
14 characteristics;
15 receive a second non-compressible packet having measurable
16 characteristics;
17 calculate bandwidth based upon characteristics of the first and
18 second non-compressible packets.

19

20 **52. (ORIGINAL)** An apparatus comprising:
21 a processor;
22 a bandwidth measurer executable on the processor to:
23 sending a first non-compressible packet;
24 sending a second non-compressible packet immediately following
25 the sending of the first packet.